

CLAIMS

What is claimed is:

1. A nail for fastening framing members comprising:

a pair of finger members having opposite first and second ends with an axial length therebetween, said finger members being integral at said first end and forming a tip configured to pierce framing members and said finger members being spaced apart at said second end and forming a head configured to receive a driving force;

a slot between said finger members extending from said second end along a portion of said length toward said tip;

a first set of teeth extending along a portion of a first finger member of said pair and pointing in a first direction; and

a second set of teeth extending along a portion of a second finger member of said pair and pointing in a second direction, said second direction being substantially opposite said first direction.

2. The nail of claim 1, wherein said slot has a first section with a first width, a second section with a second width, and said first width is greater than said second width.

3. The nail of claim 2, wherein said second section of said slot is adjacent said second end.

4. The nail of claim 1, wherein said slot has a generally uniform width.
5. The nail of claim 1, wherein said finger members are substantially coplanar at said first end and offset at said second end.
6. The nail of claim 1, wherein said first set of teeth extend along a portion of an outer sidewall of said first finger member and said second set of teeth extend along a portion of an outer sidewall of said second finger member.
7. The nail of claim 1, wherein said finger members have opposite first and second surfaces separated by inner and outer sidewalls with said inner sidewalls facing one another and defining said slot, said first set of teeth extend along a portion of said first surface of said first finger member and said second set of teeth extend along a portion of said second surface of said second finger member.
8. The nail of claim 7, wherein said first and second sets of teeth extend respectively along said portions of said first and second finger members adjacent said inner sidewalls.

9. The nail of claim 7, wherein a third set of teeth extend along a portion of said outer sidewall of said first finger member and a forth set of teeth extend along a portion of said outer sidewall of said second finger member.

10. The nail of claim 1, wherein each tooth of said first set of teeth are staggered from each tooth of said second set of teeth so that no tooth of said first set of teeth is aligned with a tooth of said second set of teeth.

11. The nail of claim 1, wherein each tooth of said sets of teeth extends outward from said fingers at a non-right angle relative to said axial length.

12. A method of fastening framing members together with a harpoon nail comprising the steps of:

- (a) positioning a tip of a harpoon nail adjacent two or more adjacent framing members;
- (b) applying a driving force to a head of said nail;
- (c) driving said nail through said framing members with said driving force until said head is in contact with one of said framing members; and
- (d) engaging said framing members with a first set of teeth facing a first direction on said nail and with a second set of teeth facing a second direction on said nail, said second direction being substantially opposite said first direction so that removal of said nail from said framing members is inhibited and said framing members are fastened together by said nail.

13. The method of claim 12, wherein said nail has a pair of offset finger members and step (c) includes aligning said offset finger members of said nail so that said sets of teeth do not engage said framing members as said nail is being driven through said framing members.

14. The method of claim 13, wherein step (c) includes ceasing said aligning of said offset finger members after said nail has been driven through said framing members so that said finger members attempt to return to an offset state and said sets of teeth engage with said framing members.

15. The method of claim 12, wherein step (b) includes applying a driving force with at least one of an air nailer and ram-type device.

16. The method of claim 15, wherein step (b) includes supporting a surface of said framing members opposite said nail with a back plate.

17. The method of claim 12, wherein step (d) includes engaging said framing members with said sets teeth with each tooth of said sets of teeth being staggered so that no tooth of said first set of teeth is axially aligned with a tooth of said second set of teeth.

18. The method of claim 12, wherein step (d) includes engaging said framing members with a first set of teeth that extend along a portion of an outer sidewall of a first finger member of said nail and with a second set of teeth that extend along a portion of an outer sidewall of a second finger member of said nail.

19. The method of claim 12, wherein said nail has first and second finger members with opposite first and second surfaces separated by inner and outer sidewalls with said inner sidewalls facing one another and step (d) includes engaging said framing members with a first set of teeth that extend along a portion of said first surface of said first finger member and with a second set of teeth that extend along a portion of said second surface of said second finger member.

20. The method of claim 19, wherein said first and second sets of teeth are adjacent said inner sidewalls of said first and second finger members respectively.

21. The method of claim 19, wherein step (d) includes engaging said framing members with a third set of teeth that extend along a portion of said outer sidewall of said first finger member and with a forth set of teeth that extend along a portion of said outer sidewall of said second finger member.

22. The method of claim 12, wherein step (d) includes engaging said framing members with first and second sets of teeth that extend outwardly from said nail at a non-right angle relative to an axial length of said nail.

23. A nail for fastening framing members together comprising:
 - a first end configured to pierce framing members;
 - a second end configured to receive a driving force;
 - a stem extending axially between said first and second ends, said stem having an interior surface and an exterior surface separated by first and second edges;
 - a first set of teeth axially spaced along a portion of said first edge; and
 - a second set of teeth axially spaced along a portion of said second edge.
24. The nail of claim 23, wherein said first set of teeth are staggered relative to said second set of teeth.
25. The nail of claim 23, wherein a lower portion of said stem reduces in cross section as said stem extends toward said first end.
26. The nail of claim 23, wherein said second end is a generally C-shaped head.
27. The nail of claim 23, wherein said second end is configured to be driven by at least one of an air nailer and ram-type device.

28. The nail of claim 23, wherein said second end has a lip that extends radially outwardly from said stem.

29. The nail of claim 23, wherein each tooth of said sets of teeth has a radial surface that is substantially parallel to said first end.

30. The nail of claim 23, wherein said first and second ends and said stem are configured to allow nesting.

31. The nail of claim 23, wherein said first and second edges are resilient and flex toward one another as said nail is penetrating through framing members.

32. The nail of claim 23, wherein said first and second surfaces are substantially parallel.

33. A method of fastening two or more framing members together with a piercing nail comprising the steps of:

- (a) positioning a tip of a piercing nail adjacent two or more adjacent framing members;
- (b) applying a driving force to a head of said piercing nail;
- (c) driving a portion of said nail through said framing members with said driving force until said head is in contact with one of said framing members; and
- (d) engaging said framing members with at least one of a first and second sets of teeth on respective first and second edges of said nail so that removal of said nail from said framing members is inhibited and said framing members are fastened together by said nail.

34. The method of claim 33, wherein step (a) includes positioning a tip of a piercing nail with a generally C-shaped cross section.

35. The method of claim 33, wherein step (a) includes positioning a tip of a piercing nail with a generally V-shaped cross section.

36. The method of claim 33 wherein step (b) includes applying a driving force from at least one of an air nailer and a ram-type device.

37. The method of claim 36, wherein step (b) includes supporting a surface of said framing members opposite said nail with a back plate.

38. The method of claim 33, further comprising loading a plurality of nested piercing nails in said at least one of said air nailer and said ram-type device.

39. The method of claim 33, wherein step (d) includes engaging said framing members with at least one of said first and second sets of teeth which are staggered.

40. The method of claim 33, wherein step (c) includes flexing a portion of said first and second edges generally toward one another with said framing members as said nail passes through said framing members.

41. The method of claim 40, wherein step (d) includes springing said portion of said first and second edges generally away from one another after said portion passes through said framing members.

42. A nail for fastening framing members together comprising:
 - a first end having a shoulder and a tip configured to pierce framing members and pass therethrough;
 - a second end configured to receive a driving force;
 - a stem having an outer surface and extending axially between said first and second ends, said stem having a cross section smaller than said shoulder; and
 - at least one spring member extending axially along a portion of said outer surface of said stem, said spring member being configured to compress as said stem passes through framing members, and said spring member having at least one engaging surface configured to fasten framing members together after said at least one engaging surface has passed therethrough.
43. The nail of claim 42, wherein said stem is circular in cross section and said spring member is concentric with and extends around said stem.
44. The nail of claim 43, wherein said at least one engaging surface is a plurality of teeth that extend radially outwardly from said spring member.
45. The nail of claim 42, wherein said at least one engaging surface is a plurality of teeth that extend outwardly from said spring member.

46. The nail of claim 42, wherein said at least one engaging surface is a plurality of fingers of varying lengths that extend axially along said spring member.

47. The nail of claim 42, wherein a first spring member of said at least one spring member extends along a portion of a first surface of said stem and a second spring member of said at least one spring member extends along a portion of a second surface of said stem opposite said first portion.

48. The nail of claim 47, wherein said first spring member has a plurality of engaging surfaces, said second spring member has a plurality of engaging surfaces, and said engaging surfaces on said first spring member are staggered from said engaging surfaces on said second spring member.

49. The nail of claim 47, wherein a third spring member of said at least one spring member extends along a portion of a third surface of said stem and a forth spring member of said at least one spring member extends along a portion of a forth surface of said stem opposite said third portion.

50. The nail of claim 49, wherein each of said first, second, third and forth spring members have a plurality of engaging surfaces, said engaging surfaces on said first and second spring members are aligned, said engaging surfaces on said third and forth spring members are aligned and staggered from said engaging surfaces on said first and second spring members.

51. The nail of claim 42, wherein a portion of said spring member remains in an opening in framing members formed by said first end when fastening framing members together.

52. The nail of claim 42, wherein a first end of said spring member is attached to said stem adjacent said shoulder.

53. The nail of claim 52, wherein a second end of said spring is attached to said stem proximate said second end.

54. The nail of claim 42, wherein said second end is configured to be driven by at least one of an air nailer and ram-type device.

55. The nail of claim 42, wherein said at least one engaging surface is one of a plurality of engaging surfaces and said engaging surfaces are spaced along an entire axial length of said at least one spring member.

56. A nail for fastening framing members together comprising:

a stem having opposite first and second ends and an axial length therebetween, said first end being configured to pierce framing members to allow said stem to pass therethrough, said second end having a ribbed portion and being configured to receive a driving force;

at least two spring fingers extending outwardly from said stem, said fingers being configured to expand and engage with framing members after passing therethrough; and

a press washer having an opening complementary to said ribbed portion of said second end, said press washer axially moveable relative to said stem, and axial movement of said press washer causing said stem to move axially relative to framing members and said finger members to expand against framing members thereby fastening framing members together between said washer and said fingers.

57. The nail of claim 56, wherein said stem has a plurality of fractures axially spaced apart proximate said second end, said fractures allowing a portion of said stem proximate said second end to be broken off.

58. The nail of claim 56, wherein said at least two fingers are spaced evenly about a periphery of said stem.

59. A method of fastening two or more framing members together with a piercing nail having at least one spring member comprising the steps of:

- (a) positioning a tip of a piercing nail adjacent two or more adjacent framing members;
- (b) applying a driving force to a head of said nail;
- (c) driving said nail through said framing members with said driving force until said head is in contact with an outer surface of one of said framing members;
- (d) compressing at least one spring member on said nail with said framing members as said at least one spring member passes through said framing members; and
- (e) engaging said framing members with an engaging surface on said at least one spring member so that removal of said nail from said framing members is inhibited and said framing members are fastened together by said nail.

60. The method of claim 59 wherein step (e) includes engaging said framing members with an engaging surface that extends concentrically around said nail.

61. The method of claim 59, wherein step (e) includes engaging said framing members with an engaging surface comprised of a plurality of teeth that extend outwardly from said at least one spring member.

62. The method of claim 59, wherein step (e) includes engaging said framing members with an engaging surface comprised of a plurality of fingers of varying lengths that extend axially along said at least one spring member.

63. The method of claim 59, wherein step (e) includes engaging said framing members with at least one of a first engaging surface that extends along a first spring member and a second engaging surface that extends along a second spring member opposite said first spring member on said nail.

64. The method of claim 63, wherein step (e) includes engaging said framing members with at least one of said first and second engaging surfaces that are staggered relative to one another.

65. The method of claim 59, wherein step (c) includes driving said nail through said framing members so that a portion of said at least one spring member remains in said framing members.

66. The method of claim 59, wherein step (b) includes applying driving force with at least one of an air nailer and a ram-type device.

67. The method of claim 66, wherein step (b) includes supporting a surface of said framing members opposite said nail with a back plate.

68. A nail for fastening framing members together comprising:
first and second members each having an elongated portion, a
flange portion, and an angular portion extending between said elongated and
flange portions, said angular portions extending from said elongated portions in a
nonparallel fashion, said flange portions extending from said angular portions in a
nonparallel fashion, said elongated portions being adjacent and forming a tip
configured to penetrate framing members, and said first and second members
being configured to receive a driving force that drives a portion of said first and
second members through framing members causing said elongated portions to
separate, said angular portions to come together as said angular portions pass
through framing members and fastening framing members together between
said elongated portions and said flange portions.

69. The nail of claim 68, wherein said flange portions are perpendicular
to said angular portions.

70. The nail of claim 68, wherein said elongated portions are coupled
together.

71. The nail of claim 68, wherein said elongated portions are coupled
together by a strap that breaks when said elongated portions separate.

72. The nail of claim 68, wherein said elongated portions are coupled together with a spot weld that breaks when said elongated portions separate.

73. The nail of claim 68, wherein said first and second members are configured to be driven by at least one of an air nailer and a ram-type device.

74. The nail of claim 68, wherein at least one of said angular portions and flange portions is configured to receive said driving force.

75. The nail of claim 68, wherein opposing inner surfaces of said elongated and angular portions form a void when adjacent and further comprising a driving member disposed between said first and second members in said void, said driving member being coupled to said elongated portions and being configured to receive and transmit said driving force to said first and second members thereby causing said first and second members to fasten framing members together.

76. The nail of claim 75, wherein said inner surfaces are concave and a portion of said driving member is cylindrical.

77. The nail of claim 75, wherein said driving member has a head that receives said driving force and is on top of said flange portions when said first and second members fasten framing members together.

78. A method of fastening framing members together with a self locking nail comprising the steps of:

- (a) positioning a tip of a self locking nail adjacent two or more adjacent framing members;
- (b) applying a driving force to said nail;
- (c) driving a portion of said nail through said framing members with said driving force until a flange portion of said nail is in contact with one of said framing member;
- (d) separating adjacent elongated portions of said nail apart as said nail passes through said framing members so that said elongated portions engage one of said framing members, inhibit removal of said nail from said framing members and fasten said framing members together between said elongated portions and said flange portions.

79. The method of claim 78, wherein step (d) includes separating said adjacent elongated portions apart as separated angular portions of said nail that are not parallel to said elongated portions pass through said framing members and come together.

80. The method of claim 78, wherein step (b) includes applying said driving force with at least one of an air nailer and ram-type device.

81. The method of claim 80, wherein step (b) includes supporting a surface of said framing members opposite said nail with a back plate on said at least one of said air nailer and said ram-type device.

82. The method of claim 78, wherein step (b) includes applying said driving force to a driving member positioned in a void between said adjacent elongated portions.

83. The method of claim 78, wherein step (d) includes breaking a spot weld that couples said adjacent elongated portions together when separating said adjacent elongated portions.

84. The method of claim 78, wherein step (d) includes breaking a strap that couples said adjacent elongated portions together when separating said adjacent elongated portions.